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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/715,867	11/17/2000	Feiling Wang	2311.2010-004	7659

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EXAMINER

TRA, TUYEN Q

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 05/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/715,867

Applicant(s)

WANG ET AL.

Examiner

Tuyen Q Tra

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-14, 16-19, 41 and 42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2, 3, 5-7, 9, 12, 13, 16-18, 41 and 42 is/are rejected.
- 7) ☒ Claim(s) 4, 8, 10, 11, 14 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Applicant's arguments with respect to claim 16 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 16, 2, 3, 5, 6, 7, 9, 12, 13, 17, 18, 41 and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang (U.S. Pat. 6,373,620 A).

a) With respect to claim 16, Wang discloses a spatial light modulator in Fig. 2 and 3 comprising of:

an array of pixels formed on a semiconductor substrate (31, Fig.3), each pixel including a solid state electro-optic material (24, Fig.3) positioned between a first (26l, Fig.3) and a second electrode (26r, Fig.3);

a first layer of dielectric material (32) forming a first mirror underneath the electro-optic material (24), and second layer of dielectric material (38) forming a second mirror above the electro-optic material (24), the first and second mirror forming a cavity; and further a well known integrated circuits techniques could be used to conveniently provide the large plurality of signal generators.

However, Wang does not implicitly disclose that an array of pixel circuits formed with the semiconductor substrate, each pixel being connected to a pixel circuit, but it is inherent from Wang's structure since an array of pixels will not operate without an array of pixel circuits.

- b) With respect to claim 2, Wang further discloses wherein solid-state electro-optic material comprises a ceramic material (col.2, line 59).
- c) With respect to claims 3 and 13, Wang further discloses wherein the solid-state electro-optic material comprises a PLZT (col.7, lines2-3).
- d) With respect to claim 5, Wang further discloses wherein electro-optic material layer having thickness of 1290 nm which less than 2000nm (col. 10, lines 43-46).
- e) With respect to claim 6, Wang further discloses the electro-optic material comprising of plurality of layers (24).
- f) With respect to claim 7, Wang further discloses wherein electrodes (26l,r) comprising of an electrically conductive layer that contacts dielectric layer (32, 38).
- g) With respect to claim 9, it is inherent from Wang's structure that the system comprising of light source and optical coupler.
- h) With respect to claim 12, Wang further discloses a first electro-optic layer comprising a first electro-optic layer (24, top) and additional layers (24, following layer) comprising a second electro-optic material (see Fig. 3).
- i) With respect to claims 17, Wang further discloses the first (32) and second layer (38) of dielectric material each comprises a stack of dielectric thin film (see Fig.3).
- k) With respect to claims 18, Wang further discloses wherein first and second electrodes (26l,r) are transmissive conductive electrode.

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1) With respect to claims 41 and 42, Wang further discloses wherein each pixel inherently connected to respective pixel circuit among the array of the pixel circuits; wherein the modulator used as Fabry-Perot filter (col.3, line 65).

Allowable Subject Matter

3. Claims 4, 8, 10, 11, 14 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reason for the indication of allowable subject matter is that (claim 4) the electrooptic material comprise an array of transistors formed on silicon substrate, (claim 8) the semiconductor substrate comprises a CMOS integrated circuit, (claim 10) a memory circuit co-located with each pixel, (claim 11) each pixel comprises random access memory, (claim 14) additional layer is PLZT layer (claim 19) a copper interconnect extending from each pixel mesa along sidewall to a circuit contact of a pixel circuit disclosed in the claims is not found in the prior art.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Wang (US Pat. 6,317,251B1) discloses electro-optic beam steering device comprising of electrode, electro-optic layer, two dielectric layers forming mirrors.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuyen Tra whose telephone number is (703) 306-5712. The examiner can normally be reached on Monday to Thursday from 8:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps, can be reached on (703) 308-4883. The fax number for this Group is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

tt

May 9, 2003


Hung Xuan Dang
Primary Examiner